

## \* NOTICES \*

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## CLAIMS

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[Utility model registration claim]

[Claim 1] Light emitting diode equipment characterized by having at least one light emitting diode chip and the lead for supplying support of this light emitting diode chip, or power, having left said whole light emitting diode chip and outcrop, and forming the projected part for heat dissipation in said outcrop in the light emitting diode equipment of a configuration of carrying out the resin mold of said lead, and changing.

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## DETAILED DESCRIPTION

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[Detailed explanation of a design]

[0001]

[Industrial Application]

This design is adopted as the light source of the optical transmission system aiming at the various remote control units and space transmission using infrared radiation etc., and is related with the suitable light emitting diode equipment of a high power mold. [0002]

[Description of the Prior Art]

The typical structure of conventional light emitting diode equipment is shown in drawing 3. This light emitting diode equipment is the light emitting diode chip 1, lead (anode) 2, and a lead (cathode).

3 and a bonding wire 4 are provided and it has structure which closed said whole light emitting diode chip 1 and part of leads 2 and 3 with the epoxy resin 5.

[0003]

[Problem(s) to be Solved by the Device]

By the way, in the light emitting diode equipment of said conventional example, the cross sections of a lead are about 4 square shapes, and the size is common 0.5mmx0.5mm order. since the production of such lead wire of this is press working of sheet metal -- \*\* -- it is thought that it has been mostly unified into this value from the reasons of the specification which the metal negative which are the capacity of the common press machine for precision processing and a charge of \*\* press material tends to receive.

In addition to this in the light emitting diode equipment of the mold mold which offers a lead as shown in said conventional example, the role of a lead is bearing support of \*\* light emitting diode chip, \*\* electric power supply, and the important role called \*\* heat dissipation. The luminous efficiency of a light emitting diode chip has the desirable structure of diffusing efficiently outside the property to fall generally, with the heat which gets down and is heated with a light emitting diode chip at the time of actuation, when temperature is high.

the lead wire is absorbed by the substrate and assembly which are connected, and a part diffuses from a lead the heat which spreads a lead for many into surrounding air (being certain -- it is -- the inside of an ambient atmosphere).

[0004]

By the way, since the cross section of a lead was mostly decided as mentioned already, the heat dissipation effectiveness will also be decided by conventional light emitting diode equipment. With the light emitting diode equipment of the high power type which used the highly efficient light emitting diode chip in which high power actuation is possible, since generation of heat also becomes large at coincidence, engine performance sufficient with the general lead dimension currently used for conventional light emitting diode equipment cannot be attained in many cases.

then, 1mm which shows only the breadth of leads 2 and 3 to drawing 4 (B) as one solution from the conventional about 0.5mm width of face which shows a configuration to drawing 4 (A), (without changing) the thickness of a metal negative -- being certain -- it is -- it is possible to deform with 2mm width of face etc.

[0005]

However, when it is made this deformation configuration, resin mold will be enlarged to the structure shown in drawing 5 (B) from the structure shown in drawing 5 (A), the stress which acts on a light emitting diode chip in connection with this will increase, and a light emitting diode chip will receive a big burden. And the trouble said that failures, such as decline in luminous efficiency and formation of a short life, occur in connection with this arises.

Then, the technical problem which this design tends to solve is to solve said trouble. [0006]

[Means for Solving the Problem]

The equipment concerning this design solves the above technical problems, and consists of the following configurations. namely, -- the light emitting diode equipment of a configuration of having at least one light emitting diode chip and the lead for supplying support of this light emitting diode chip or power, leaving said whole light emitting diode chip and outcrop, carrying out the resin mold of said lead, and changing -- setting -- Light emitting diode equipment characterized by forming the projected part for heat dissipation in said outcrop.

[0007]

[Function]

The whole light emitting diode chip and the lead which left the outcrop are closed by resin mold, the projected part for heat dissipation is formed in said outcrop, and a heat dissipation environment is improved.

[0008]

[Example]

Hereafter, it explains with reference to drawing per example of this design. In addition, the same sign is given to the same component as said conventional example.

Drawing 1 is the 1st example of the light emitting diode equipment concerning this design. In this drawing, light emitting diode equipment possesses the light emitting diode chip 1, lead (anode) 2, lead (cathode) 3, and a bonding wire 4, and makes them the structure which closed said whole light emitting diode chip 1 and part of leads 2 and 3 by resin mold with the epoxy resin 5. The amount of [ this / that was closed ] structured division is the same structure as said conventional example.

The characteristic structure of the example of this design is in the point in which the projected parts 2a and 3a for heat dissipation which change from two or more protrusion configurations to the outcrop outside the resin mold section of leads 2 and 3 were formed. It will become suitable in order to attach in the location which has a limit in the height direction, since a heat sinking plane product can be earned and width of face of the height direction of projected parts 2a and 3a can be narrowed, when it is made two or more of these protrusion configurations.

[0009]

Moreover, drawing 2 is the 2nd example of light emitting diode equipment. In this example, the projected parts 2a and 3a for heat dissipation are made into the shape of a singular, and it is easy to carry out press working of sheet metal.

[0010]

Therefore, according to both the above-mentioned examples, a heat dissipation environment is improved without considering as a large-scale configuration, the light emitting diode equipment of high power can be offered more, and it is not regulated by the configuration and dimension of a resin mold part. Moreover, a lead is simply formed of the conventional press working of sheet metal, has the degree of freedom of the configuration of a radiator, and becomes what has an easy design.

[0011]

[Effect of the Device]

According to the equipment of this design, at least one light emitting diode chip, In the light emitting diode equipment of a configuration of having the lead for supplying support of this light emitting diode chip or power, leaving said whole light emitting diode chip and outcrop, carrying out the resin mold of said lead, and changing Since it is considering as the configuration which formed the projected part for heat dissipation in said outcrop, a heat dissipation environment is improved without considering as a large-scale configuration, the light emitting diode equipment of high power can be offered more, and it is not regulated by the configuration and dimension of a resin mold part. Moreover, a lead is simply formed of the conventional press working of sheet metal, has the degree of freedom of the configuration of a radiator, and does effectiveness, like a design will become easy so.

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## TECHNICAL FIELD

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### [Industrial Application]

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## PRIOR ART

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### [Description of the Prior Art]

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[0003]

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## EFFECT OF THE INVENTION

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### [Effect of the Device]

According to the equipment of this design, at least one light emitting diode chip,

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## TECHNICAL PROBLEM

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### [Problem(s) to be Solved by the Device]

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## MEANS

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### [Means for Solving the Problem]

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[0007]

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## OPERATION

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## [Function]

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[0008]

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## EXAMPLE

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### [Example]

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### [0009]

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### [0010]

Therefore, according to both the above-mentioned examples, a heat dissipation environment is improved without considering as a large-scale configuration, the light emitting diode equipment of high power can be offered more, and it is not regulated by the configuration and dimension of a resin mold part.

**JAPANESE** [JP,06-009158,U]

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CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION  
TECHNICAL PROBLEM MEANS OPERATION EXAMPLE DESCRIPTION OF DRAWINGS DRAWINGS

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[Translation done.]

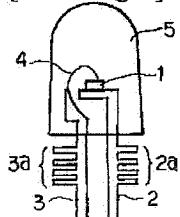
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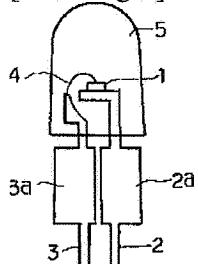
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## DRAWINGS

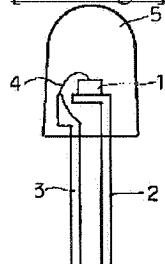
[Drawing 1]



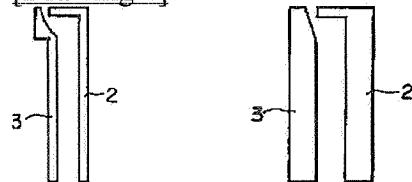
[Drawing 2]



[Drawing 3]



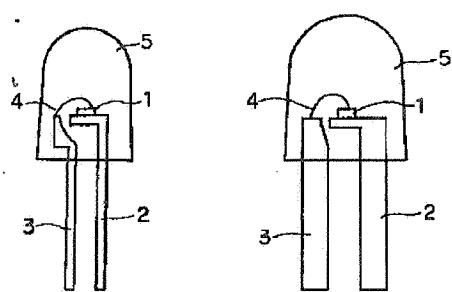
[Drawing 4]



(A)

(B)

[Drawing 5]



[Translation done.]